ISS and Human Research Project Office Highlights
April 2, 2010

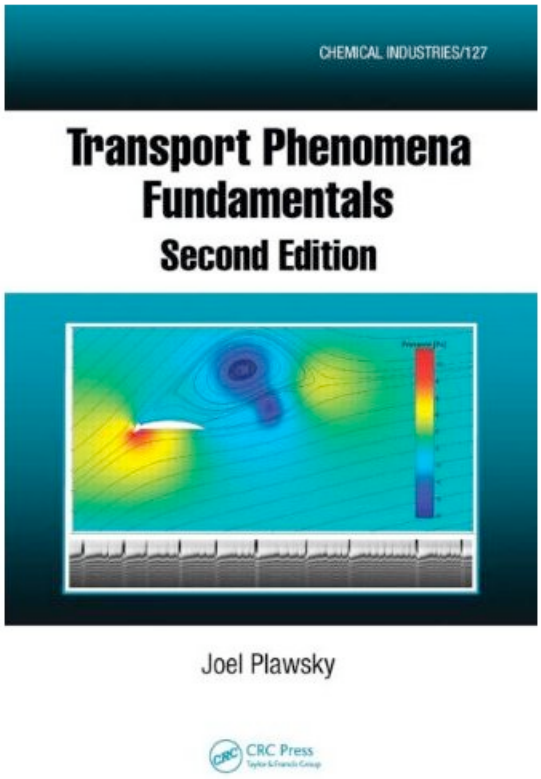
ISS Research Program

FIR/LMM/CVB operations continue on ISS.

Fluids Integrated Rack/Light Microscopy Module/Constrained Vapor Bubble (FIR/LMM/CVB) operations are on-going through day 091. We have completed over 90% of the extended test matrix. We are presently collecting data by holding the heater temperature constant and changing (raising) the cooler temperature. We have also collected video data of lateral oscillations. We are looking forward to starting operations with the dry/calibration module. (POC: MAH/Ronald Sicker, (216) 433-6498).

Data for CVB used on cover of textbook.

Professor Joel L. Plawsky from the Rensselaer Polytechnic Institute, Department of Chemical and Biological Engineering used ground testing data from the Constrained Vapor Bubble (CVB) experiment on the cover of his recently published textbook "Transport Phenomena Fundamentals, Second Edition". What is depicted is the oscillation of the fluid inside CVB an ideal wickless heatpipe. This is the black and white strip of image data below the color modeling. CVB is presently operating (March 22-29) on ISS. (POC: MAH/Ronald Sicker, (216) 433-6498).



MDCA/FLEX completes six tests points on ISS.
Multi-use Droplet Combustion Apparatus' Flame Extinguishment Experiment (MDCA/FLEX) achieved six test points on Monday, March 29, 2010, four using methanol and two using heptane fuel. The science test matrix using nitrogen is nearly complete, and the crew will soon be replacing the nitrogen gas with carbon dioxide. A few more nitrogen test points are left and as many as three tests may be run on Monday, April 5, 2010, should Discovery (STS-131) incur a launch delay. Additional slip operations for MDCA/FLEX include preparing the MDCA chamber for crew access, alignment guide installation, and transfer and downlink of image files. crewmember is to replace one fuel reservoir, two gas bottles, and an adsorber cartridge. A total of 49 of 199 test points have been run successfully. (POC: J. Mark Hickman, (216) 977-7105)

Smoke Aerosol Measurement Experiment-Reflight (SAME-R) hold SR/DR.
The SAME-R System Requirements/Design Review (SR/DR) was held on March 26, 2010. The team was commended for their work. There were no RFAs, suggestions, or comments. The review chair, Deborah Niemira, will publish a formal review summary by mid-April. (POC: J. Mark Hickman, (216) 977-7105)

Girl Scout Space Station Science Day
This informal education event was held for 200 Girl Scouts of grades 2-5 at NASA Glenn Research Center on Saturday, March 27, 2010. With leaders, parents, and volunteers, over a total of 300 people participated in the morning and afternoon sessions. The event included approximately twenty activities and exhibits related to space exploration, aviation, and science in general, as well as a tour of the Zero Gravity Research Facility for volunteer staff. The volunteers included several pilots from Girls With Wings (http://www.girlswithwings.com), forty students from Case Western Reserve University (CWRU), Girl Scout volunteers from the Girl Scouts of North East Ohio Council (GSNEO), and NASA personnel including Joan Emmett (ASRC/MAH), Nancy Hall (MAH), Dawn Jenkins (Analex/MB), Susan Johnson (RB), Julie Kleinhenz (RPP), Lori Manthey (A), Dennis Stocker (REC), Frank Vergilii (MAC), Afroz Zaman (RHA), and NASA interns/co-ops Amber Abbott (REC), Jeff Hoyt (CHB), and Mallory Miller (REC). The CWRU students were recruited by Amber Abbott (who is herself a CWRU student) from Alpha Chi Sigma (chemistry fraternity), Kappa Alpha Theta, Phi Sigma Rho (engineering sorority), and the Society of Women Engineers (SWE). Important support was also provided by NASA Glenn's exhibits staff and ITC, JDD, and the Exchange Store which opened for the event. The activity-filled day was just one program in the ongoing partnership between NASA Glenn, GSNEO, and Girls With Wings to engage and inspire girls to consider futures in Science, Technology, Engineering, and Mathematics (STEM). It will be followed next by a NASA Career Day for girls in grades 9-12 on June 21. Contact Dennis Stocker at x2166 to volunteer for future events. (POC: MAH/Nancy R. Hall, (216) 433-5643)

Scout volunteer helps Jr. Girl Scouts with end effector (simulating the end effector used on ISS) activity.

A group of Girl Scouts posing with EVA the astronaut.

Human Research Program

On-orbit operations continue on the T2 treadmill with two new crewmembers

The Harness Station Development Test Objective (SDTO) flight experiment continued this week with on-orbit operations for two new crewmembers starting the protocol on the T2 treadmill. These are Subjects 4 and 5 out of a total of seven anticipated to participate by the end of November 2010. Three crewmembers have completed the protocol thus far during Increment 21/22. (POC: MAH/Gail Perusek, (216) 433-8729)

Institutional review board protocol submitted for "Moniotring Bone Health by Daily Load Simulus Measurement during Lunar Missions" study.

An institutional review board protocol was submitted for review by the NASA Committee for the Protection of Human Subjects (CPHS) for the "Monitoring Bone Health by Daily Load Stimulus Measurement during Lunar Missions" study. This study is a National Space Biomedical Research Institute sponsored study with Dr. Peter Cavanagh (University of Washington) serving as the Principal Investigator. This will be reviewed at the April CPHS meeting at NASA Johnson Space Center. (POC: MAH/Gail Perusek, (216) 433-8729)

Institutional review board protocol submitted for "Hardware Evaluation of an Advanced Concept Ergometer in the Exercise Countermeasures Laboratory" study.

An institutional review board protocol was submitted for review by the NASA Committee for the Protection of Human Subjects (CPHS) for the "Hardware Evaluation of an Advanced Concept Ergometer in the Exercise Countermeasures Laboratory" study, to be reviewed at the April CPHS meeting at NASA Johnson Space Center. Additionally, the Safety Package for this study was submitted to the GRC Area 4 Safety Committee. This is an evaluation of functional upgrades made to the ergometer prior to testing at the 2010 Desert RATS analog trials in the Lunar Electric Rover. (POC: MAH/Gail Perusek, (216) 433-8729)

Two institutional review board protocols approved for the Exercise Countermeasures Lab.

Two institutional review board protocols were approved by the NASA Committee for the Protection of Human Subjects. The protocols were approved for the Exercise Countermeasures

Lab. The first is titled “Master Protocol -- Exercise Countermeasures Laboratory for Equipment / Data Systems, Human / Equipment Interfaces, Qualified Operator Training with Human Participants, Laboratory Tours and Demonstrations." The second is titled "Exercise Countermeasures Laboratory Master Protocol for Laboratory Tours and Demonstrations with Outside Personnel." These are both valid through February 2011. (POC: MAH/Gail Perusek, (216) 433-8729)

GRC summer intern successful defends thesis on diagnostic ultrasound for space medical applications.

On March 26, University of Akron Student and NASA Glenn National Space Biomedical Research Institute (NSBRI) summer intern, Brian George, successfully defended his thesis “Experimental and Computer Modeling of Ultrasound Correlation Techniques.” Mr. George started this work under the tutelage of Dr. Jerry Myers (MAH) to expand on work in diagnostic ultrasound for space medical applications originated by Dr. Myers as part of the Glenn Research Center (GRC) Individual Research Development (IRD) program. (POC: MAH/Jerry Myers, (216) 433-2864)

Leaders of NE Ohio biomedical community meet for collaboration kickoff meeting of Human Performance Consortium.

Leaders of the biomedical community in Northeast Ohio determined a need for collaboration between organizations conducting research quantifying human performance. Accordingly, the kickoff meeting of the Human Performance Consortium took place on Friday, March 26 at Case Western's Dively Center.

Participants included investigators and managers from Case Western, Kent State, Cleveland State, the Cleveland Clinic/Lerner Research Institute, Orbital Research, and Glenn's Human Research Program. Dr. DeVon Griffin provided the group with an overview of the range of activities underway at Glenn. The group plans a follow up at Cleveland State's Human Performance Laboratory in April. (POC: MAH/DeVon Griffin, (216) 433-8109)

Summa Foundation meets with GRC HRP personnel.

Representatives from the Summa foundation will be meeting with Glenn Research Center (GRC) Human Research Program (HRP) personnel to discuss research and technology areas of mutual interest. An introduction to this group was made by the Johnson Space Center Space Medicine Division Chief. This meeting will focus on understanding the work being done and capabilities of both parties. (POC: MAH/Marsha Nall, (216) 433-5374)